

## **Learning by design: language learning through digital games**

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In recent years there has been a great deal of interest in the use of digital games in language teaching and broad agreement among researchers and practitioners that good games can be powerful learning tools. However, in the field of ELT much of this interest has been focused on using only peripheral aspects of games, such as digital badges and leaderboards or the *gamifying* of traditional language teaching materials and procedures. In this paper I take an alternative stance, viewing digital games as interactive systems. Each section guides the reader through the core mechanics of an archetypal game, describing and discussing how it can be used to develop key language skills.

### **INTRODUCTION**

ELT trends come and go, especially technological trends. Commercially, they often burn brightly for a year and then fade into relative obscurity without ever seeing their potential fully explored or fulfilled. They get consumed by an industry that is, perhaps, a little too eager to move on to the next big thing. Digital games are no exception to this, and while there have been plenty of tentative steps towards their application to language teaching, these have often involved stripping them of what I consider to be their core affordances by, for example:

- Using games as rewards (if you get the answers right you can play this game)
- Focusing on the language in game walkthroughs (reading/following written instructions on how to complete a game)
- Talking about games (e.g. comparing likes/dislikes)
- Using static screenshots from games (look at this image from a game, describe it, predict what's going to happen next, etc.)
- Using games as other media (watch this trailer for a game/video review, etc.)
- Gamification (appropriating certain elements associated with games such as points, badges, leaderboards and rewards and applying them to non-game activities).

Nevertheless, these are still positive steps, as they mean that games are no longer being ignored by educators or dismissed as a mere frivolous distraction from the “serious business” of learning. It also signals that we have moved on from the over-simplistic arguments surrounding issues such as video game violence, addiction, and sexism that are so often propagated by the media.

### **LEAPS AND BOUNDS**

Digital game studies is now a thriving but relatively young discipline. The first substantial academic studies began to coalesce into a recognisable research field in the early 1980s, some 30 years after the first video games were created. By the mid-seventies, video games had successfully transitioned from a niche hobby for the laboratory computer scientist to a mainstream form of mass entertainment. Since then, the pace of research has accelerated to match the growing diversity, popularity and cultural impact of digital games and digital media in general. We now see audiences, once content with more passive forms of entertainment, becoming increasingly dissatisfied with their spectator status, preferring instead to play a more active role as participants.

### **BREAKING NEW GROUND**

As the field of study has grown, it has diversified considerably. As language teachers, we can

now draw on this research to explore digital games through a wide variety of lenses and apply the lessons learned to our own contexts. We could, for example, choose to focus on how digital games create and sustain motivation, how they scaffold and situate learning, how they generate cognitive flow, or how they provide feedback. As virtual environments, video games are also the most spatial and multimodal form of media, affording movement through meticulously designed spaces. This spatial aspect of digital games provides new opportunities to investigate learning-space design. Lessons drawn from this can help us to rethink how we plan brick-and-mortar educational spaces or to improve the experience of online and blended learning.

These are just a few examples of the many, many lenses through which digital games can be viewed. There is such a wealth of new territory for us to explore and we are just getting started.

There is, however, one critical issue regarding the pedagogic application of digital games that I would like to deal with before proceeding any further.

### **BREAKING THE HERMETIC SEAL**

Games are typically played within certain boundaries. Chess and monopoly are played on boards, tennis on a court, and football on a pitch. Similarly, digital games are typically played within the boundaries of digital spaces. Huizinga (1949) describes this physical or symbolic *membrane* between games and everyday life as the “magic circle”:

All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course... All are temporary worlds within the ordinary world, dedicated to the performance of an act apart. (p. 10)

This idea of digital games somehow existing in a separate space from the ordinary world is problematic, as it raises the issue of *learning transfer*. For games to be considered beneficial as more than just extrinsic motivators or design templates for more traditional classroom materials, it must be possible for the skills and knowledge acquired within the games to be applied in the real world. This is, of course, an issue that affects all content designed for learning, but it has become a particular focus of attention for critics of digital game-based learning. Game design is unfamiliar territory for most publishers of ELT materials and it is perhaps for this reason that many of the games they currently produce rely on tried-and-tested gap-fill mechanics, word games, or quizzes that mimic the kinds of tasks required of learners in standardised tests. These game types produce easily quantifiable scores that can be presented as evidence of learning. While this is perfectly fine, it does not solve the problem of learning transfer. While learners may demonstrably improve their scores in the grammar and vocabulary tests these games train them for, this does not mean that they will be capable of actively producing the new language they have learned in more authentic, communicative social contexts. This approach also rarely produces a compelling game or a positive response from learners.

### **PROCEDURAL LEARNING**

It is my belief and experience that the most powerful aspect of learning in digital games is not to be found in the explicit outcome. It is not in the scores, points, badges, or number of correct answers. Games are interactive systems, and in a well-designed game it is the *process* of playing that is a powerful tool for learning. It is for this reason that I have chosen to focus my attention on the procedural aspect of playing games. By this I mean how the actual *process* of playing a game can benefit language learners and overcome the problem of

learning transfer. In order to illustrate this I will describe and discuss five games that I have used with my own students. None of these games were designed specifically with language learners in mind and each was selected in response to the needs of a particular group of students, in the same way I might have chosen an authentic film clip, article or podcast.

### **Game 1: *Phonopath***

(Applied digital learning)

The first game we will look at is *Phonopath*, a free, web-based project created in 2012 by Kevin Regamey. As you may have guessed from the name, this game is all about sound. I used *Phonopath* with a group of Portuguese university students who were taking a degree course in communication and multimedia. Their course had an English for Specific Purposes (ESP) module and when I discovered *Phonopath* it seemed like an ideal way to help them develop the language skills and vocabulary they needed to communicate within this specific domain, while simultaneously helping them to improve their multimedia expertise.

The game is quite challenging to describe and, to my knowledge, is unique in its design. In fact, most of the game isn't even played within its own boundaries. In order to proceed through *Phonopath* you need to solve a puzzle hidden within an audio file that you download from the game's website. Once you have acquired the file, you need to work out what to do in order to decode the hidden message, which provides you with the password you need to move on to the next level. As this could be quite a time-consuming process, after solving the first level together in class my students played much of the game in their own time with the goal of being the first person to crack a specific level. The only "reward" for this was that they would earn the right to explain (in English) and demonstrate how they had achieved this in the following class.

Many of the puzzles require you to manipulate the audio. In one of the early stages the sound is played backwards, requiring you to reverse it in order to understand what is being said (in English). As the game itself provides no tools for this, you are forced to explore whether the software you already have installed on your device can achieve it, or search for tools online and teach yourself how to use them by trial and error, reading or watching tutorials or asking for help on forums. As the puzzles increase in complexity you soon find yourself dealing with pitch shifting, audio filters, the manipulation of sound spectrograms and the application of music theory. In *Phonopath* the gameplay essentially resides *outside* of the game interface (shattering Huizinga's concept of a "magic circle"). Through playing a video game in English, my students found themselves learning how to use a wide variety of digital multimedia tools across multiple platforms to solve each stage. When class time was allocated to work on a particular audio file they would work collaboratively in small teams, pooling their resources, sharing their devices and communicating in English throughout.

*Phonopath* is, as one might expect, very popular with sound designers and other audio professionals. For my ESP multimedia students it provided a motivating, challenging and engaging vehicle to improve their English through listening (to the game's audio recordings and YouTube software tutorials), reading (through instructions and guides found online), writing (as they posted questions on domain-specific forums) and speaking (to each other during team sessions and to the whole class when presenting their solutions). In addition to this they were developing learner autonomy and valuable, highly transferrable digital skills that would be useful to them in their future careers.

*Phonopath* is a quintessential example of how a digital game can serve as an immersive introduction into a specific field of knowledge. The remaining games will similarly be explored through the lens of procedure, focusing specifically on how the actual *mechanics* of the game (in simple terms, how the game creates and structures opportunities

for interaction) facilitate the development of language skills, including reading, writing, listening and speaking skills. These games intertwine exploration, narrative and specific language skills, not as add-ons, tests, or rewards, but as an integral part of their gameplay.

## **Game 2: *Lifeline***

(Reading as a game mechanic)

*Lifeline* is a simple mobile text-based game by 3-minute Studios (2015) that can be played on both iOS and Android devices, including smartwatches. The plot revolves around the main character, Taylor, an astronaut trying to survive on an alien planet following a spaceship crash. In order to survive, he (or she – Taylor's gender is not specified) requires the player's guidance and moral support in what is, essentially, a form of choose-your-own-adventure experience. The game interface relies on your phone's notification system, so it isn't even necessary to unlock your device in order to play. You receive, what appears to be, text messages and then make binary decisions based on the options you are provided with.

*Lifeline* has no images, and very little sound. It is entirely driven by written dialogue. The story also takes place in real time, so if, for example, you advise Taylor to explore something in the distance, an hour may pass before you receive the next message saying that the character has arrived. I demonstrated the game to my students in class and then asked them to download and play the game as a reading assignment (at the time the game was free as part of a special promotion. It currently costs £1.99 on the UK app store). At the beginning of each class we discussed Taylor's progress in small groups, comparing and contrasting the decisions taken and the resulting consequences.

One of the main reasons I chose this game was because many of the students in this particular B2-level group did not enjoy reading or reported that they found the assigned course book texts either too dull or too challenging. I thought that they might find *Lifeline* more compelling as it requires a more active form of reading. While the texts are quite short, they are tied to making meaningful decisions. The main character in the story is quite sarcastic, and while this can be annoying at times, my students reported that they soon began to care about Taylor's welfare. Some of them cared so much in fact, that they reported feelings of guilt when Taylor perished due to following their bad advice. This emotional engagement with the character helped to reduce their affective filter.

Although the language in the game's messages was at least as challenging as the course book texts, their brevity made them more manageable. Instead of reading a large, complex text in a single sitting, they were dealing with shorter chunks of language multiple times throughout each day.

There are several critical moments during the game in which the players have insufficient information to confidently make the right choice. They can either take a (risky) guess or, as I had hoped, search online for guidance. In one such scenario Taylor asks whether the amount of radiation he/she is registering on a Geiger counter is safe. This led several of my students to search for scientific articles online, which they skimmed, scanned and interpreted in order to make an informed decision. In addition to this, it was interesting that students reported using a dictionary far more frequently while playing the game than they would typically have done to read a traditional, non-interactive text. Their explanation for this was, that because they cared about Taylor's welfare, they didn't want to give the character the wrong advice by misunderstanding the language contained in the messages.

Traditional interactive fiction games in which players have to respond to the game through writing text commands often require a considerable amount of time, patience, and linguistic flexibility by the player in order to make any progress. This is due to the limitations of the *text parser* (the software used to interpret text input). In my experience, this can lead to

students feeling extremely frustrated, as they make repeated failed attempts to input commands that the game understands, even when these are written in perfectly correct and appropriate English. Games such as *Lifeline* overcome this problem by presenting the player with binary choices. Although this form of interaction may appear somewhat simplistic, it means that players can focus on understanding what they read without a text parser acting as a barrier to becoming immersed in the unfolding storyline. In addition, while many of the commands in traditional text parser-based IF games are typically mundane (e.g. “go north”, “open wallet”), the choices presented in *Lifeline* are more likely to have an immediate, meaningful impact on the story.

### **Game 3: *Her Story***

(Listening as a game mechanic)

*Her Story* is a detective game that relies on listening to and interpreting the evidence provided by a suspect in a fictional murder case. This is achieved by searching through a large database of videos of the suspect being interviewed by the police.

Complicated games are best avoided as your learners are likely to waste a large amount of time grappling with the rules or interface. One of *Her Story*’s greatest strengths is just how easy it is to play. If you know how to use a search engine, then you are ready to start. If you search for a particular word that you hear in one of the interviews that you think might be a clue, you can type it into the search box and any other video snippets that contain that same word will appear. You can then watch those clips in any order you like, as you try to make sense of all the evidence.

In some ways *Her Story* resembles a Gothic mystery novel. But as you play in the role of the detective, you get to decide how the plot takes shape through (initially) guesswork and then later more targeted research. The narrative is non-linear, revealing itself to each player in a different sequence. As such, the players become the co-authors of the story. This helps to foster autonomy while developing their critical thinking skills and ability to synthesise information.

If the game is played without stopping, it is likely to take several hours. With my students, we played the game in small doses over a two-week period, mostly in 10 to 15 minute sessions. The class was divided into four teams of detectives and in each round a different group would suggest a search term. The whole class would then watch the collection of video clips containing that particular term (usually 3 or 4 clips of approximately 30 seconds each) and take notes of any clues they thought might be pertinent to solving the crime.

At the end of the two-week period, based on their notes, each group would present their case, describing who they thought had committed the crime, how it was done, and what the motive was.

While it is difficult to quantify if or by how much each individual learner had improved their listening skills (this was in no way an academic study), they clearly found these intensive listening sessions highly engaging. While the crime story may have been fictional, the authenticity and level of control the students had over which content to listen to, which leads to follow, and how to parse and present all the information were very real. Many of the students bought the game to play in their own time in order to explore different routes through the story.

### **Game 4: *Elegy for a Dead World***

(Writing as a game mechanic)

*Elegy for a Dead World* is a game about writing fiction. By the end of a play session your students will have written an original, illustrated story that can be shared online, saved as a document or printed out as a paper book. You play the role of a fearless explorer, travelling to distant worlds as a kind of intergalactic *xenoarchaeologist*. Your job is to investigate a series of beautiful-but-lifeless worlds and try to piece together the story of their former inhabitants. What kind of culture and technology did they have? What gods did they worship? How did they live? How did they communicate? What do those magnificent sculptures symbolise? What caused the population to leave or perish?

As you move through the landscape the game cues you with writing prompts, asking you to describe and reflect upon what you have discovered. From desiccated shores, abandoned libraries, crumbling architecture and icy tundra, you piece together the final days of lost civilisations.

*Elegy* is a great game for overcoming several barriers that students (and even professional authors) often encounter when trying to begin a new piece of writing, namely the dreaded “blank page syndrome” (when you open a new document and then your mind immediately goes blank). It supports learners in several ways:

- Learners can browse through and read other players’ works, selecting the most recent or most popular stories for each of the worlds. This is a great source of chunks of language that directly relate to the worlds the students are about to explore.
- In a task-based learning cycle the authentic texts also help to introduce the subject and assist learners in understanding what they need to do and what the expected outcome will be.
- The game provides an in-built platform for sharing the final stories. The fact that there is an audience of other players around the world who might choose to read their work not only adds authenticity to the task but also helps to create and sustain motivation.

The writing prompts that appear at intervals in the game further scaffold the writing process. As a teacher playing this with a whole class (perhaps by projecting the game onto a large screen), you can control the level of prompt, from short sentence stems to more elaborate and poetic triggers. Alternatively, perhaps for higher levels, you can opt to remove all prompts, encouraging students to draw upon the images in the games and their own imaginations.

## CONCLUSION

Digital games offer huge unexplored potential as tools for language learning, but to use them effectively we need to understand them better as the social, interactive, procedural, aesthetic, multimodal and cultural artefacts that they are.

As teachers and learners ourselves, we also need to play games in order to explore and reflect on how they embody good learning principles and how these might be better exploited. We need to learn from the way games contextualise learning and provide just-in-time feedback. We need to understand the role of play in generating creativity, improving motivation and lowering the affective filter.

Developing game literacy is fundamental to understanding how we can maximize the use of digital games in and out of the language classroom. Many of the key concepts that have been identified as 21st century skills can be found in the games I have discussed, including critical thinking, decision-making, research skills, creativity, media production skills, and the ability to synthesize information from different sources.

My intention here has been to shine a light on a strong form of game-based learning in which the core mechanics of each example have been identified and applied to train

particular language skills. We can learn important lessons from how digital games *teach* players to play, and how they scaffold learning and adapt for mixed ability. To transcend current trends and unlock the secrets entangled in the blended concepts of game, play and learning, we need to develop an empowering practice of critical play.

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## **REFERENCES**

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